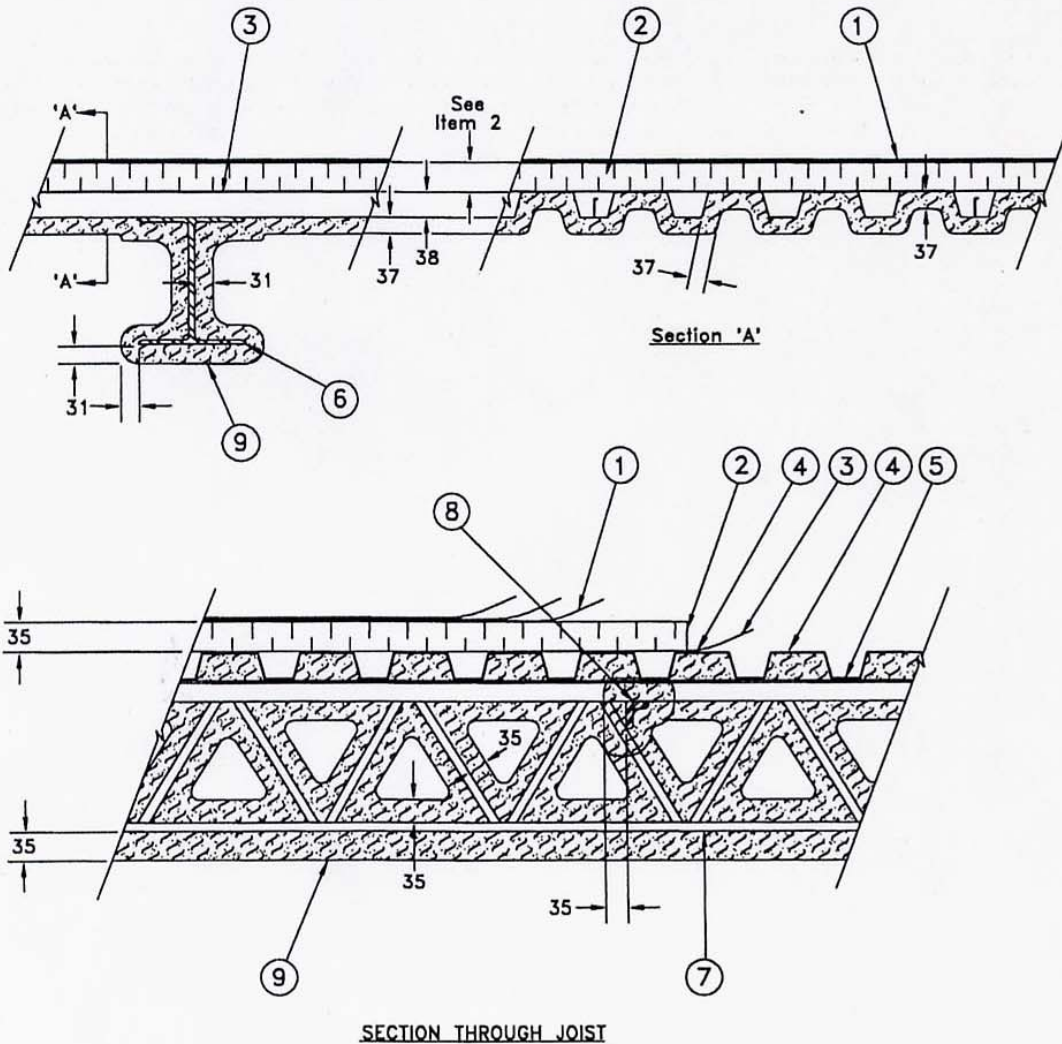




HiBAR™ Spray-Applied Fire-Resistive Material
RATED ULC DESIGN R807 – (ROOF ASSEMBLY)
 RE: ULC List of Equipment & Materials – Fire Resistance (March 2000)

DESIGN No. R807

Restrained Assembly Rating	– 1 h
Unrestrained Assembly Rating	– 1/2 h (See Item 5)
Unrestrained Beam Rating	– 1 h



• 1. (a) **Roof Covering** – (Guide No. 360 018). Class A, B or C built-up roof covering, consisting only of felt and asphalt in alternate layers, as specified in the General Information Section under Guide No. 360 018.

OR

(b) **Roof Covering** – (Guide No. 360 018). Class A built-up roof covering, consisting of Firestone Standard or Standard Reinforced Rubbergard EPDM roofing membrane, 1.1 to 1.5 mm thick, loosely laid on rigid roof insulation (Items 2a to c) and surfaced with 25 to 38 mm diameter commercial grade gravel, washed and well rounded, applied at a rate of not less than 490 kg/10 m². As an option, 13 mm thick wood fibreboard may be used between insulation and roofing membrane.

When these roofing membranes are used, 1200 by 2400 by 15.9 mm thick gypsum wallboard, 10.3 kg/m² minimum area density, must be applied with adhesive to steel roof deck.

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- **2. Rigid Roof Insulation** – (Guide No. 40 U18.9).
 - (a) Glass-fibre boards in panels, 915 by 1220 mm by 70 mm minimum thickness and 100 mm maximum thickness. Applied with adhesive to vapour barrier or steel deck. Boards installed with end joints staggered 600 mm OC in adjacent rows. When applied in more than one layer (100 mm maximum total thickness), all joints shall be staggered 300 mm from those of the previous layer, and subsequent layers shall be applied with hot-mopping asphalt applied at the rate of 14.6 kg/m².
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 - (b) Resol foam boards, 915 by 1220 mm. When this insulation is used, the maximum restrained and unrestrained assembly ratings are 1 h. Refer to Guide No. 40 U18.9 for minimum board thicknesses corresponding to various gypsum wallboard underlayments. The gypsum boards are supplied in sheets nominally 600 mm by 1200 mm to 1200 mm by 2400 mm. Where gypsum board is required, board is applied perpendicular to steel deck with adhesive. End joints positioned over crests of steel roof deck with end joints in adjacent rows staggered 600 mm. Vapour retarder adhered to gypsum wallboard with hot asphalt mopped full coverage at the rate of 7 kg/10 m², or with adhesive applied full coverage at the rate of 1.65 L/10 m². Where gypsum board is not required, vapour retarder adhered to steel deck with hot asphalt applied in narrow ribbons spaced 150 mm OC (or sprinkle mopped) at the rate of 2.0 to 2.5 kg/10 m², or with adhesive in narrow ribbons spaced 150 mm OC at the rate of 1.0 to 1.65 L/10 m². Resol foam boards adhered to vapour retarder with narrow ribbons of hot asphalt spaced 150 mm OC at a rate of 4 to 5 kg/10 m². Resol foam boards installed perpendicular to gypsum wallboard with end joints staggered 600 mm in adjacent rows. When applied in more than one layer, each layer of insulation board offset in both directions from layer below a minimum of 300 mm in order to lap all joints. Full coverage hot asphalt applied between layers at a rate of 10 to 12 kg/m², or 150 mm OC ribbons of hot asphalt at a rate of 6 to 7 kg/10 m². Resol foam insulation protected by an overlayment of minimum 12.7 mm thick, 2.9 kg/m² area density wood fibreboard, or maximum 57 mm thick base cap roof insulation.
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OR

- (c) Polyisocyanurate insulation boards 1200 by 2400 mm minimum size by 81 to 100 mm minimum thickness and 300 mm maximum thickness. When this insulation is used, 1200 by 2400 by 15.9 mm thick gypsum wallboard, 10.5 kg/m² minimum area density, must be applied with adhesive to steel roof deck, and a ballasted roof covering must be employed. Insulation applied in single or multiple layers. Boards to be installed perpendicular to gypsum wallboard direction with end joints staggered 600 mm in adjacent rows. When applied in more than one layer, each layer of board to be offset in both directions from layer below a minimum of 300 mm in order to lap all joints.
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- **3. Sheathing Material** (optional) – (Guide No. 40 U18.17V). Applied with adhesive to steel deck, adjacent sheets overlapped an average of 50 mm.
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4. Adhesive – Applied to steel deck, ULC listed under Guide No. 40 U18.1-1/2 (and vapour barrier if used) at the rate specified in the manufacturer's listing.

5. Steel Roof Deck – Fluted steel deck, minimum 0.76 mm thick galvanized steel, nominally 38 mm deep and 910 mm wide. Flutes approximately 145 mm OC, crests approximately 80 mm wide, valleys approximately 40 mm wide. Attached to joist and beam with 20 mm dia welds spaced 300 mm OC and at both sides of deck joints. Adjacent units crimped along joints at 400 mm OC. When the maximum clear span of the steel roof deck is less than or equal to the tested span of 1700 mm the unrestrained assembly rating may be increased to 1 h.

6. Beam – W150x18 minimum size.

7. Joist – 250 mm deep, 10 kg/m minimum size open web steel joist, designed in accordance with the relevant provisions of Part 4 of the National Building Code of Canada, spaced 1700 mm OC.

8. Bridging – Designed in accordance with the relevant provisions of Part 4 of the National Building Code of Canada.

• **9. Spray-Applied Fire-Resistive Material** – (Guide No. 40 U18.6). Applied with or without adhesive to steel surfaces in thicknesses indicated above. Fibre to have a minimum average dry density of 153 kg/m³ with a minimum individual density value of 139 kg/m³. For method of density determination, refer to General Information Section under heading "Fire Resistance Ratings". Steel surfaces must be clean and free of dirt, loose scale and oily deposits.

CELUFIBRE INDUSTRIES

• **10. Fasteners, Mechanical** (not shown) – (Guide No. 40 U18.5). "Glasfast" steel screw and plastic plate fastener system installed through rigid roof insulation, sheathing material, gypsum wallboard and steel roof deck according to manufacturer's instructions. Limited to assemblies having a maximum fire resistance rating of 1 h. Adhesive or asphalt is not required to adhere fastened insulation boards.
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